

ABSTRACT OF THE DISCLOSURE

A sensor that characterizes welds in materials. The sensor includes a
5 meandering drive winding with at least three extended portions and at least one sensing
element placed between an adjacent pair of extended portions. A time varying electric
current is passed through the extended portions to form a magnetic field. The sensor is
placed in proximity to the test material and translated over the weld region. An
electrical property of the weld region is measured for each sensing element location.
10 The weld quality is determined using a feature of the electrical property measurement
and location.